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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,367	09/10/2003	Yuval Lomnitz	2265/39	3320

7590 03/05/2008  
PEARL COHEN ZEDEK LATZER, LL  
10 ROCKEFELLER PLAZA  
SUITE 1001  
NEW YORK, NY 10020

EXAMINER
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TRAN, PHUC H

ART UNIT	PAPER NUMBER
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2616

MAIL DATE	DELIVERY MODE
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03/05/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/658,367

**Applicant(s)**

LOMNITZ, YUVAL

**Examiner**

PHUC H. TRAN

**Art Unit**

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-18 is/are allowed.
- 6) ☒ Claim(s) 1 and 19 is/are rejected.
- 7) ☒ Claim(s) 2-10, 20 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 10/31/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Objections*

1. Claim 2 is objected to because of the following informalities: "a separate multi-tone" in lines 1-2 should be rewritten as "the separate multi-tone". Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-10, and 19-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 1 recites the limitation "the OFDM error vector magnitude" in line 6. There is insufficient antecedent basis for this limitation in the claim.
4. Claim 19 recites the limitation "the OFDM EVM" in line 4. There is insufficient antecedent basis for this limitation in the claim.

### *Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

Art Unit: 2616

subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claim 19 is rejected under 35 U.S.C. 102(e) as being anticipated by Goodall et al. (Pub. No. 20050249129).

- With respect to claim 19, Goodall teaches a method for estimating the error vector magnitude (EVM) of an OFDM signal comprising the steps of: obtaining a multi-tone EVM of a separate multi-tone signal (e.g. the receiving EVMs from EVM-capable APs); and using said multi-tone EVM to estimate the OFDM EVM (e.g. determine the EVMs by using probe response that includes EVMs; see paragraph 120).

***Allowable Subject Matter***

7. Claims 11-18 are allowed.

8. Claims 1 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

9. Claims 2-10 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

10. Claims 20-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: claims are allowable over the prior art of record since the cited references taken individually or in combination fails to

Art Unit: 2616

particularly discloses A method for error vector magnitude (EVM) calibration of an OFDM signal transmitter comprising the steps of: a. providing a separate multi-tone signal with unmodulated carriers; and b. estimating a multi-tone error vector magnitude of said separate multi-tone signal, whereby said multi-tone error vector magnitude is closely correlated with the OFDM error vector magnitude; wherein said step of providing a separate multi-tone signal includes providing a multi-tone signal characterized by a plurality of unmodulated carriers set at OFDM bins frequencies and filling only a portion of Said OFDM bins, whereby said separate multi-tone signal thus includes full bins and empty bins; wherein the number of said full bins is equal to between 20-30 percent of the number of said OFDM bins; wherein said step of providing a separate multi-tone signal further includes transmitting said multi-tone signal from a unit under test (UUT) to a golden unit (GU), and wherein said step of estimating a multi-tone error vector magnitude of said multi-tone signal include estimating from said multi-tone a frequency offset at between said UUT and said GU, correcting said frequency offset, performing a FFT operation on a slice of said frequency offset multi-tone, and estimating said EVM from said results of said FFT operation.

### *Conclusion*

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Naegeli et al. (U.S. Patent No. 6757522 B1) discloses technique for determining carrier-to-noise ratio of selected channels in an access network.

Art Unit: 2616

Ryan et al. (U.S. Patent No. 6898198 B1) discloses selecting the data rate of wireless network link according to a measure of error vector magnitude.

Webster et al. U.S. Patent No. 6754195 B2) discloses wireless communication system configured to communicate using a mixed waveform configuration.

Shattil (Pub. No. 20040243258) discloses carrier interferometry coding and multicarrier processing.

Luong Nguyen (2002), Simulation Method to Extract Characteristics for Digital Wireless Communication Systems.

Jiang Hao (Swedent, 2002), Vector analysis of EDGE transmitter signals.

Mihai, (IEEE, 2002), A 5-GHz BiCOMS RFIC front-end for IEEE 802.11a/HiperLAN Wireless LAN.

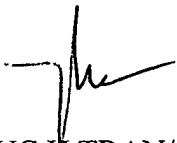
Kevin, (IEEE, 2002), testing wireless local area network transceiver ICs at 5GHz.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHUC H. TRAN whose telephone number is (571)272-3172. The examiner can normally be reached on M-F (8-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CHI PHAM can be reached on (571) 272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2616

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



/PHUC H TRAN/  
Examiner, Art Unit 2616